

Remarks

Reconsideration and withdrawal of the rejections of the claims, in view of the amendments and remarks herein, is respectfully requested. Claims 1 and 34 are amended, claims 13-15 are canceled herein, and claims 35-36 are added. The amendments are intended to advance the application and are not intended to concede to the correctness of the Examiner's position or to prejudice the claims prior to amendment, which claims are present in a continuation of the above-referenced application. Claims 1-12 and 16-36 are now pending in this application.

New claim 35 recites the sequence of a peptide referred to as P5L in the specification, which is a subsequence of P5 (SEQ ID NO:5).

New claim 36 is supported at page 12, lines 12-14 of the specification.

The above-referenced substitute SEQUENCE LISTING is filed to conform the above-referenced application to the requirements of 37 C.F.R. §§ 1.821 - 1.825. In accordance with 37 C.F.R. § 1.821(e), a copy of the above-submitted substitute SEQUENCE LISTING in ASCII computer readable form is also submitted on even date herewith to the U.S. Patent and Trademark Office, Mail Stop Sequence, P.O. Box 1450, Alexandria, VA 22313. The contents of the paper version of the substitute SEQUENCE LISTING submitted herewith, and the computer readable form being submitted to Mail Stop Sequence, are the same and do not include new matter.

With regard to the objection to the specification at page 2 of the Office Action, the Examiner is requested to note that the amendment to the paragraph on page 48 of the specification in the Amendment mailed July 2, 2004 introduced a subscripted 2 after EuP3, i.e., amended (EuP3) to (EuP3₂). In the Amendment mailed July 2, 2004, the subscripted 2 was underlined in the request to amend the paragraph on page 48 to indicate that it was to be inserted at the underlined position.

The Examiner rejected claims 1-2, 4-18, 27-29, and 34 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, and as containing subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. These rejections, as they may be maintained with respect to the pending claims, are respectfully traversed.

In particular, the Examiner asserts that 1) the peptides recited in claims 3, 32 and 33 are not enabled, and 2) the invention is only enabled for metals of the lanthanide series.

P3 corresponds to SEQ ID NO:2 (the elected peptide), P3W corresponds to SEQ ID NO:7, P4 corresponds to SEQ ID NO:4, P4a corresponds to SEQ ID NO:3, P5 corresponds to SEQ ID NO:5, CM1 corresponds to SEQ ID NO:6, and P5L corresponds to SEQ ID NO:8. Data for P3, P4a and P5L (the latter is a subfragment of P5 that has a deletion at the N- and C-terminus of 5 and 8 residues, respectively) are shown in Table 1 of Applicant's specification, and data for P3W and P4 are in Kovacic et al. (*J. Am. Chem. Soc.*, 125:6656 (2003)) and Sirish et al. (*J. Inorg. Biochem.*, 91:253 (2002)) (of record). With respect to the activity of CM1, the Examiner is requested to consider the Rule 132 Declaration enclosed herewith, executed by Dr. Sonya Franklin, the inventor of the pending claims. In the Declaration, Dr. Franklin discusses the similarities of CM1 with tested synthetic peptides and concludes that metallo-CM1 likewise would bind and cleave DNA.

The claims are amended to recite that the metal binding domain in a peptide or polypeptide of the invention is one which is capable of binding a lanthanide, calcium or a metal in the same group as calcium. However, lanthanide and calcium metal binding domains may also bind other metals, e.g., the later actinides (see the Rule 132 Declaration enclosed herewith).

The Examiner also requests that Applicant confirm the meaning of the phrase " $A_{43} \rightarrow R_{(19)}$ " and comment on rejoinder of the claims. The phrase $A_{43} \rightarrow R_{(19)}$ was intended to indicate the position and type of substitution in a synthetic peptide having nucleic acid binding sequences and a metal binding sequence relative to the position and residue in one of the full length (nonsynthetic) proteins (nucleic acid binding protein or metal binding protein), or a domain thereof, i.e., the synthetic peptide has an arginine residue at position 19, which residue corresponds to an alanine at residue 43 in one of the full length proteins or a domain thereof.

With regard to rejoinder, the Examiner is requested to consider that for each sequence assigned to Groups I-V (as well as sequences recited in claims 33 and 35, that is, SEQ ID NOs. 7

and 8), each has a metal binding domain and nucleic acid binding sequences (Figure 2). Moreover, each of the sequences in those Groups and SEQ ID NO:7 has the motif: DKDGN/DGT/Y/FI, TE/RRRR, and W/HFQN, and all but one has the motif: KIW/HFQNKRRARIK. Thus, the peptides of SEQ ID NOs:2-8, and in particularly the peptides of SEQ ID NOs:2-5 and 7-8, are, at the primary amino acid sequence level, related. Moreover, the carboxy-terminal half of SEQ ID NO:6 is highly related to SEQ ID NOs. 3 and 4. The Examiner is also reminded that each of the claims which recite a particular amino acid sequence (claims 2-3, 30-33 and 35) are dependent on (linked to) claim 1. Thus, Applicant's Representatives respectfully request rejoinder of at least the claims of Groups II-V, and claims 34-36 (added since filing and also dependent on claim 1), with Group I, so that claims 1-18 and 27-36 are considered in this application.

Accordingly, withdrawal of the § 112(1) rejections is respectfully requested.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6959 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date

January 3, 2005

By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 3rd day of January, 2005.

CANDIS BUENDING

Name

Signature

Candis Buending